



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,155	09/24/2003	Won Hee Lee	P24282	2798
7055	7590	07/30/2004	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			JIANG, CHEN WEN	
			ART UNIT	PAPER NUMBER
			3744	

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/668,155	LEE ET AL.	
	Examiner	Art Unit	
	Chen-Wen Jiang	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,2,3,11,12 and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda (U.S. Patent Number 5,816,065) in view of Maeda (U.S. Patent Number 6,199,394) and further in view of Yoho et al. (U.S. Patent Number 5,353,606) or Dinnage et al. (U.S. Patent Number 6,557,365).

In regard to claims 1 and 15, Maeda '065 disclose a desiccant assisted air conditioning system. Referring to the figures, especially to Fig. 7, the system comprises air inlet passage 107, suction fan 102, regeneration inlet 124, discharge fan 140, desiccant wheel 103, regenerating heat exchanger 104, heater 310 and heat pump 200. The duct arrangement is a design choice, e.g., Yoho et al.. However, Maeda does not disclose the detail of the regenerating heat exchanger and the process air comes from outside air and discharge air comes from indoor air. Maeda '394 discloses the regenerating heat exchanger 18 and Yoho et al. and Dinnage et al. disclose the intake air and discharge air can be either indoor air, outdoor air or mixed air in the same field of endeavor for the purpose of heat exchange different air system. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the apparatus of Maeda '065 with a regenerating heat exchanger of Maeda '394 and air handling of Yoho et al or Dinnage et al.

In regard to claims 11 and 12, Maeda '394 disclose the passages of the regenerating heat exchanger are intersecting each other.

In regard to claims 16-20, the heat pump system of Maeda '065 is capable to have different operation modes and Maeda '394 discloses different modes.

In regard to claims 2 and 3, Dinnage et al. disclose the desiccant wheel is coated with desiccant and in two passages.

3. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda and Yoho et al. as applied to claims 1,11 and 12 above, and further in view of Okamoto et al. (U.S. Patent Number 4,377,400).

Maeda and Yoho et al. disclose the invention substantially as claimed. However, Maeda and Yoho et al. do not disclose the detail of the regenerating heat exchanger. Okamoto et al. disclose a heat exchanger (Fig.2) in the same field of endeavor for the purpose of exchange heat. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the apparatus of Maeda and Yoho et al. with a heat exchanger in view of Okamoto et al. so as to exchange heat.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda and Yoho et al. as applied to claim 1 above, and further in view of Cohen et al. (U.S. Patent Number 4,729,774).

Maeda and Yoho et al. disclose the invention substantially as claimed. However, Maeda and Yoho et al. do not disclose the heat exchanger material is aluminum. Cohen et al. disclose a heat exchanger is aluminum in the same field of endeavor for the purpose of exchange heat. Therefore, it would have been obvious to one having ordinary skill in the art at the time the

Art Unit: 3744

invention was made to provide the apparatus of Maeda and Yoho et al. with an aluminum heat exchanger in view of Cohen et al. so as to exchange heat. Also, the applicant should note that the selection of known material based upon its suitability for the intended use is a design consideration within the skill of the art. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda and Dinnage et al. as applied to claims 1 and 2 above, and further in view of Ragland et al. (U.S. Patent Number 6,575,228) and Calton et al. (U.S. Patent Number 5,579,647).

Maeda and Dinnage et al. disclose the invention substantially as claimed. However, Maeda and Yoho et al. do not disclose the desiccant material. Ragland discloses silica gel and Calton discloses titanium. Also, the applicant should note that the selection of known material based upon its suitability for the intended use is a design consideration within the skill of the art. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

6. Claims 6,8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda and Yoho et al. as applied to claims 1 and 2 above, and further in view of Colvin et al. (U.S. Patent Number 3,619,987).

Maeda and Yoho et al. disclose the invention substantially as claimed. However, Maeda and Yoho et al. do not disclose the detail of the desiccant wheel. Colvin et al. disclose a desiccant wheel with blade (Fig.5) in the same field of endeavor for the purpose of removing moisture. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the apparatus of Maeda and Yoho et al. with a desiccant wheel in view of Colvin et al. so as to remove moisture.

### ***Double Patenting***

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-33 of copending Application No. 10/668,162. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications claim regenerating heat exchanger, desiccant dehumidifier, regenerating heater, heat pump and the details of the regenerating heat exchanger and desiccant wheel.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chen-Wen Jiang whose telephone number is (703) 308-0275.

The examiner can normally be reached on Tuesday-Friday from 7:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel can be reached on (703) 308-2597. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chen-Wen Jiang  
Primary Examiner

A handwritten signature in black ink, consisting of a stylized 'C' followed by a series of loops and a final horizontal stroke.